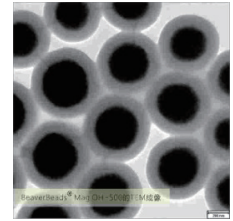


BeaverBeads™ Molecular Diagnostics

BEAVER Biomedical Engineering Co., Ltd.

BeaverBeads™ Silica

BeaverBeads™ silica are specially developed for nucleic acid extraction and purification. The surface is modified with a large number of OH/COOH/NH₂ groups. It can capture nucleic acids under certain conditions and suitable for high-throughput automated extraction and purification of nucleic acids.



Feature

1. Excellent nucleic acid binding capacity: up to 20 µg DNA/mg beads;
2. Splendid operation performance: Magnetic beads disperse evenly with super paramagnetism, magnetic response time is <30s;
3. High stability: Complete silicon oxide coating and stable performance.
4. High compatibility: Suitable for high throughput automatable operation.

Application

- Nucleic Acid Extraction
- Magnetic protein separation

Product List

Cat. No.	Product Name	Specification
70304-5	BeaverBeads™ SuperMag OH-500	5 mL, 10 mg/mL, 500 nm
70304-50		50 mL, 10 mg/mL, 500 nm
70302-5	BeaverBeads™ Mag OH-1000	5 mL, 10 mg/mL, 1000 nm
70302-50		50 mL, 10 mg/mL, 1000 nm
70302-1000		4×250 mL, 10 mg/mL, 1000 nm
70201-5	BeaverBeads™ Mag NH ₂ -S500	5 mL, 10 mg/mL, 500 nm
70201-50		50 mL, 10 mg/mL, 500 nm
70112-1	BeaverBeads™ Mag COOH-SC300	1 mL, 50 mg/mL, 300 nm
70112-10		10 mL, 50 mg/mL, 300 nm
70112-100		100 mL, 50 mg/mL, 300 nm
70111-1	BeaverBeads™ Mag COOH-PC300	1 mL, 50 mg/mL, 300 nm
70111-10		10 mL, 50 mg/mL, 300 nm
70111-100		100 mL, 50 mg/mL, 300 nm

BeaverBeads™ Circulating DNA Kit

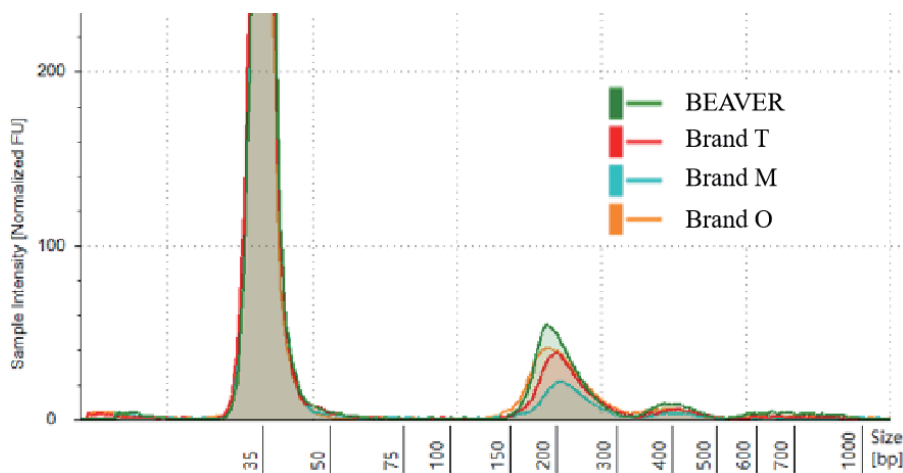
BeaverBeads™ Circulating DNA Kit enables efficient purification of cell free DNA from human plasma, serum, or urine. Samples can be either fresh or frozen but cannot be frozen and thawed for more than once. Combining the kit with BeaverDevice Rosetta 24, the automatic extraction of circulating DNA from up to 24 samples with volume ranging from 0.2 to 5 mL in parallel can be realized. The extracted products are without proteins, nucleases and other impurities and thus can be used for subsequent practices, such as PCR amplification, sequencing and detection.

Feature

1. High yield: The optimized operation procedure to maximize the extraction of circulating DNA;
2. High purity: The optimized buffer system to remove PCR inhibitors and Protein contaminants effectively;
3. High throughput and automatable: automatically processing 24 samples at one time within 40 min;
4. Flexible sample volume: extract circulating DNA from 0.2~5 mL serum or plasma.
5. Flexible elution volume: 50~150 µL

Application Cases

Comparison with competing products



Apply BeaverBeads™ Circulating DNA Kit and kits from 3 other brands to extracting cell free DNA from 2 mL plasma. The elution volume is 80 µL. Analyze the cfDNA with Agilent 4150 and the results show that BeaverBeads™ Circulating DNA Kit recycles the cfDNA with the efficiency 10-40% better than the products from brands.

Product List

Cat. No.	Product Name	Specification
70404II-100	BeaverBeads™ Circulating DNA Kit	100 rxns

BeaverBeads™ Saliva DNA Kit

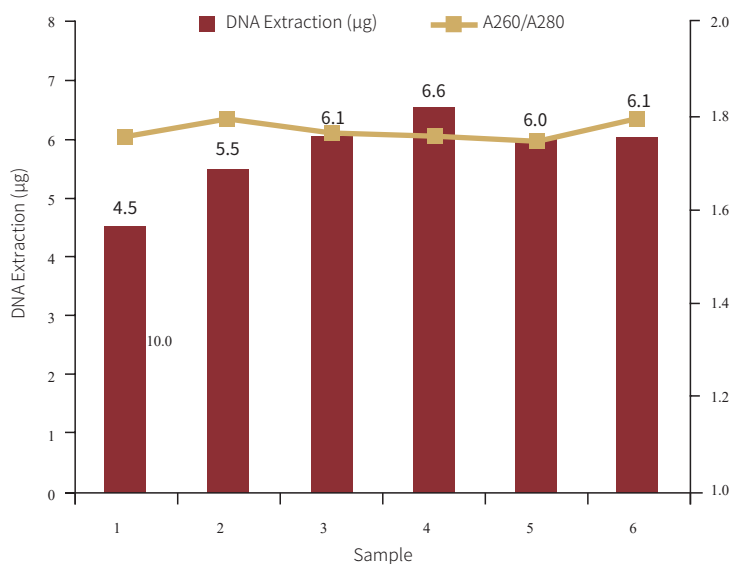
BeaverBeads™ Saliva DNA kit is applicable for rapid and efficient extraction of genomic DNA from fresh or frozen saliva samples. The extraction process using superparamagnetic beads can be carried out without centrifugation and the reaction system can be adjusted according to the amount of samples added. This product can be extracted manually for 0.2-1.0 mL saliva samples, also be applied to high throughput operation with automatic workstation and nucleic acid extraction system. The purified saliva DNA can be used for the following experiments such as enzyme digestion, PCR amplification and detection.

Feature

1. Reaction system is adjustable;
2. Conduct sample lysis and nucleic binding synchronously, especially suitable for automation;
3. Remove impurities efficiently, such as protein and inorganic salt, A260/280 value > 1.7;
4. No toxic solvents such as phenol and chloroform.

Application Cases

Extraction Ability Test



Extract DNA from 200 µL saliva sample and then measure the amount of DNA with UV spectrophotometer. The amount of extraction reaches 4-6 µg and the A260/A280 ratio is 1.7-1.8.

Product List

Cat. No.	Product Name	Specification
70405-100	BeaverBeads™ Saliva DNA Kit	100 rxns

BeaverBeads™ Viral DNA/RNA Kit

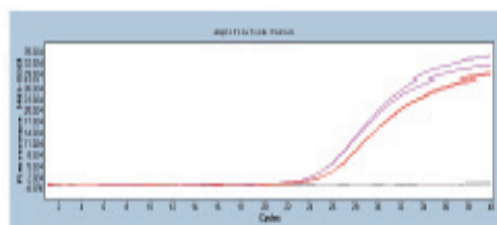
BeaverBeads™ Viral DNA/RNA Kit applies magnetic beads as microcarriers for nucleic acid separation and extraction. It is suitable for the extraction of viral DNA and RNA from fresh or frozen samples of plasma, serum, urine, secretion, virus concentrate, virus preservation fluid, cell culture supernatant, or acellular body fluids. The purified samples can be directly used for PCR detection, digestion and other nucleic acid detection tests. This product can be adapted to various models of nucleic acid extraction instrument and automatic extraction workstations. One single batch is able to complete the extraction process in 10 minutes.

Application Cases

1. Viral DNA Extraction Performance

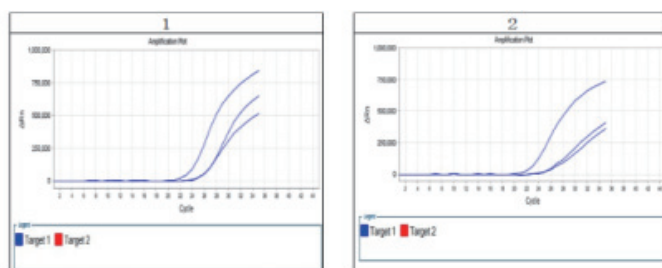
Sample	BEAVER (Ct)	Competitor (Ct)
HBV serum	24.55	25.21

Test data show that BeaverBeads™ Viral DNA/RNA kit extracts DNA more efficiently than competitor on HBV sample extraction.



2. Viral RNA Extraction Performance

Sample	HCV	Conc. (copies/mL)	Ct
Competitor	300	300	24.08
	E3	1000	24.21
	E4	10000	21.52
BEAVER	300	300	24.08
	E3	1000	24.38
	E4	10000	21.00



BeaverBeads™ Viral DNA/RNA kit extracts RNA as efficiently as competitor on HCV sample extraction.

Product List

Cat. NO.	Product Name	Specification
70406-32FV	BeaverBeads™ Viral DNA/RNA Kit	32 rxns, prefilled, V bottom
70406-32FU		32 rxns, prefilled, U bottom
70406-96FV		96 rxns, prefilled, V bottom
70406-96FU		96 rxns, prefilled, U bottom
70406-100		100 rxns, Bottle

BeaverBeads™ Stool DNA/RNA Kit

BeaverBeads™ Stool DNA Kit realizes the rapid extraction of nucleic acids of human and bacteria from stool sample with nano magnetic beads. The procedure can be scaled up or down, in order to meet the needs of experiments with different amounts of starting material. This product is both suitable for automatic and manual operation. The extracted products can be used for PCR amplification, sequencing and detection.

Feature

- Automation solution for 200 µL-10 mL samples;
- High yield: > 2µg from 200 mg stool samples;
- No toxic solvent: such as phenol and chloroform.

Application Cases

1.Recovery rate

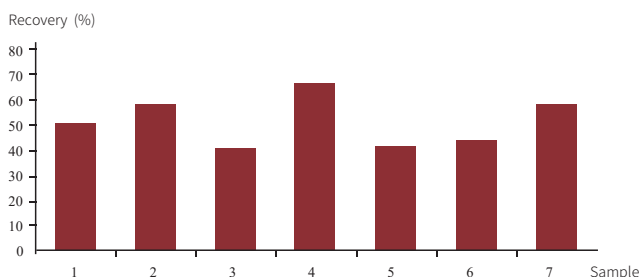


Fig 1. Recovery rate of DNA fragments from different samples

2.Extraction Rate

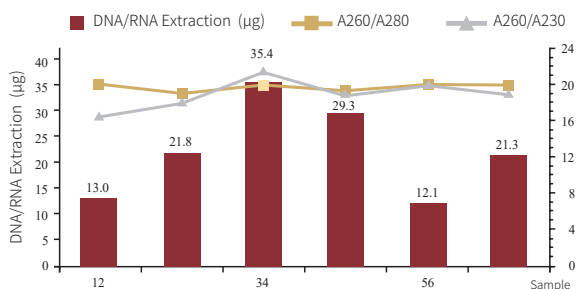


Fig 2. Total DNA extracted by BEAVER product from different stool samples

3.Average Comparison

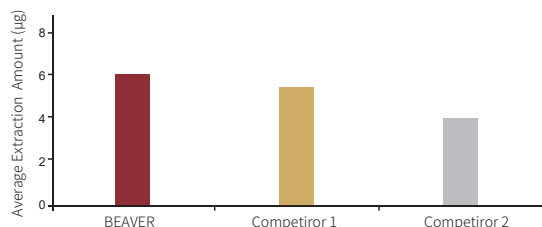


Fig 3. Average sample extraction from different brands

Add exogenous DNA fragment to stool samples, then use BeaverBeads™ Stool DNA/RNA Kit to recover nucleic acid fragment and quantify it with qPCR.(see Fig 1.). The results showed that the average recovery rate of the target fragment with BEAVER products was about 60% in different samples.

Using BeaverBeads™ Stool DNA/RNA Kit to extract DNA from 200 mg human stool sample and use Qubit equipment to test DNA content (see Fig 2.). The result showed DNA yield reaches 12-35 µg and A260/A280 > 1.8, A260/A230 is about 2.0. The DNA extracted is of good purity.

Using BeaverBeads™ Stool DNA/RNA extraction kits of different brands to extract the same 200 mg sample, average extracted amounts are showed in Fig 3. BeaverBeads™ Stool DNA/RNA extraction kit performance is superior to others'. BeaverBeads™ Stool DNA/RNA Extraction Kit has excellent extraction efficiency.

Product List

Cat. NO.	Product Name	Specification
70411-100	BeaverBeads™ Stool DNA/RNA Kit	100 rxns

BeaverBeads™ Blood DNA Kit

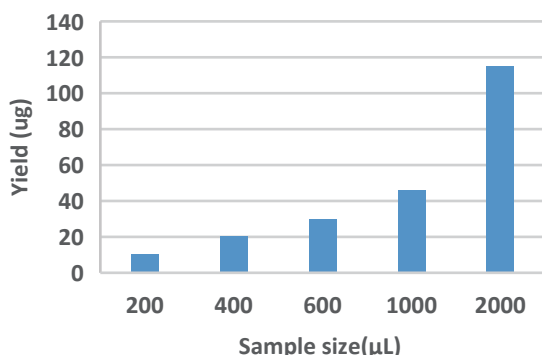
BeaverBeads™ Blood DNA Kit utilizes magnetic beads technology to extract genome from serum, plasma and blood samples treated with different anticoagulants efficiently. The product is easily automated and all the procedures can be completed in the instrument. In addition, the operation with this kit is fairly safe since the kit does not contain poisonous reagents like phenol and chloroform. The high-quality purified DNA can be used directly for downstream applications, including PCR amplification, sequencing and detection.

Feature

- High yield: > 4µg from 200 µL samples;
- Flexible sample size: suitable for extraction from 200~2000 µL blood
- High purity: A260/280 1.7-1.9, A260/230 1.8-2.0;
- Simple operation: one-step lysis and binding, no manual operation;
- Safety: without poisonous reagents, such as phenol and chloroform.

Application Cases

Flexible sample size: suitable for extraction from 200~2000 µL blood

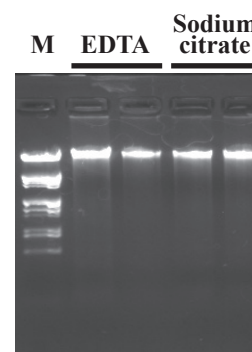


- Extract the blood samples with different sizes (200~2000 µL) with BEAVER kits separately.
- Results show that BEAVER kits are suitable for extraction from 200-2000 µL samples and ~10µg DNA can be extracted from every 200 µL blood.
- The total amount of nucleic acid extracted increases proportionally with the increase of sample size.

Suitable for extraction from blood samples treated with different anticoagulants

	ng/µL	Yield (µg)	260/280	260/230
EDTA treated	108.72	10.87	1.80	2.13
	112.72	11.27	1.79	2.09
Sodium Citrate treated	106.56	10.66	1.80	2.10
	106.95	10.70	1.79	2.07

Extract blood samples treated with different anticoagulant (200 µL) with BeaverBeads™ Blood DNA Kits. The performance does not differ significantly.



Product List

Cat. No.	Product Name	Specification
70423-100	BeaverBeads™ Blood DNA Kit	100 rxns

BeaverBeads™ Blood RNA Kit

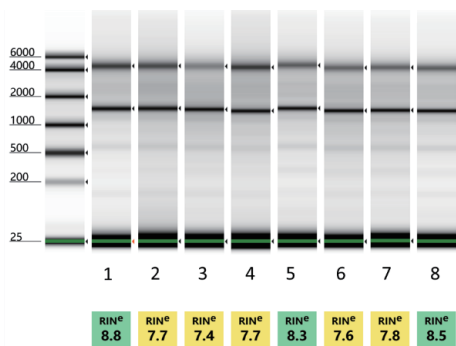
BeaverBeads™ Blood RNA Extraction Kit is used to rapidly and efficiently extract total RNA from anticoagulant whole blood samples. This product can be manually used for a small amount of samples, but also suitable for high-throughput automated workstations. Extracted RNA can be used for RT-PCR, Northern Blot, Dot Blot, in vitro translation and other follow-up experiments.

Feature

- 1.Simple operation: no erythrocyte lysis or heating steps;
- 2.High compatibility: suitable for blood samples treated with different anticoagulants
- 3.Automation: one-step lysis and binding, no manual operation;
- 4.Safety: without poisonous reagents, such as phenol and chloroform.

Application Cases

Samples 1, 2, 3 and 4 were extracted by automated instrument with one-step lysis and binding method; Samples 5, 6, 7 and 8 were extracted by manual operation.



The blood RNA extracted with automated operation using one-step lysis and binding method and manual operation show approximate concentration. The RNA integrity and purity are satisfactory. RIN values are mostly over 7.5.

Product List

Cat. No.	Product Name	Specification
70405-100	BeaverBeads™ Blood RNA Kit	100 rxns

BeaverBeads™ DNA Select Isolation Kit

BeaverBeads™ DNA Select Isolation kit applies superparamagnetic beads and provides an easily automated way to select nucleic acid fragment efficiently. This method avoids the use of centrifugation and filtration. The recovered nucleic acid fragment is of high quality without salt residues. Thus, the DNA after selection can be used for Next Generation Sequencing. This product is suitable for manual operation and high-throughput automated pipetting workstations.

Feature

1. High purity: the recovered nucleic acid fragment can be used for Next Generation Sequencing.
2. Accurate screening: free selection of screening range of nucleic acid fragments.
3. High operating performance: Magnetic beads have strong response ability so that negative impacts caused by residuals can be avoided.

Application Cases

BeaverBeads™ DNA Select Isolation and Competitor’s product share the same screening interval.

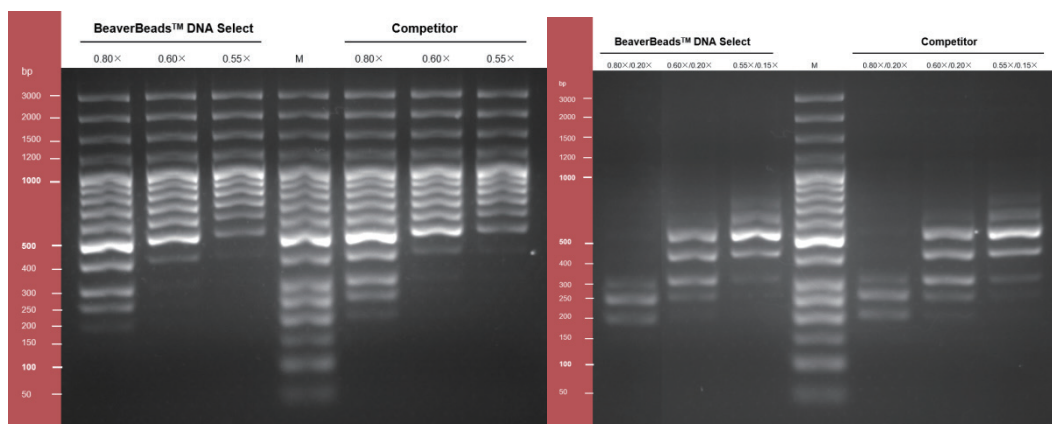


Fig. Gel electrophoresis images show the recovered DNA fragments after fragment screening

Product List

Cat. No.	Product Name	Specification
70407-5		5 mL
70407-60	BeaverBeads™ DNA Select Isolation Kit	60 mL
70407-450		450 mL

BeaverBeads™ Oligo (dT)

BeaverBeads™ Oligo (dT) applying surface covalently conjugated with Oligo (dT), can couple with Poly A at the tail of mRNA in eukaryotes. BeaverBeads™ Oligo (dT) can efficiently separate complete and high purity mRNA from eukaryotic total RNA, animal and plant tissues or cell lysates. The isolated mRNA can be used in various molecular biological experiments: RT-PCR, solid phase cDNA library construction, RACE, Northern, etc.

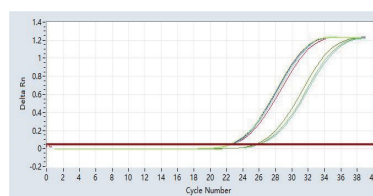
Feature

- Abundant surface active sites and high mRNA capture efficiency;
- Uniform particle size, good suspension, and low sedimentation rate;
- Industrial scale production, and high batch stability.
- Low nonspecific adsorption and high mRNA purity;
- Short magnetic response time, suitable for automatic operation;

Application Case I

Sample: Human Cell Total RNA Loading: 300ng Total RNA Magnetic Beads Usage: 20μL

Target	Magnetic Beads	Mean Ct
GAPDH mRNA	Brand D	22.56
	BEAVER	22.62
18S rRNA	Brand D	26.06
	BEAVER	26.19

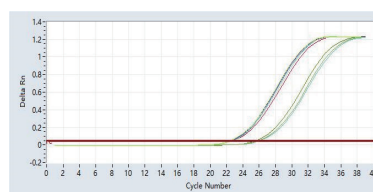


During the experiment, BeaverBeads Oligo (dT) appears suspension performance as splendid as the beads from import brand D. Purify mRNA from human cell total RNA sample, and perform quantitative detection on the sample by qPCR. The difference of Ct value on mRNA (specificity) and sRNA (non-specificity) is <0.1. Therefore, the two types of magnetic beads both show high performance.

Application Case II

Sample: Plant Total RNA Loading: 600ng Total RNA Magnetic Beads Usage: 20μL

Target	Magnetic Beads	Mean Ct
GAPDH mRNA	Brand D	22.63
	BEAVER	22.68
18S rRNA	Brand D	26.04
	BEAVER	25.91



During the experiment, BeaverBeads Oligo (dT) appears suspension performance as splendid as the beads from brand D. Purify mRNA from plant cell total RNA sample, and perform quantitative detection on the sample by qPCR. The difference of Ct value on mRNA (specificity) and sRNA (non-specificity) is <0.15. Therefore, the two types of magnetic beads both show high performance.

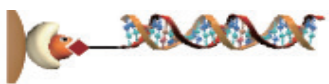
Product List

Cat. No.	Product Name	Specification
70430-1	BeaverBeads™ Oligo dT	1mL,5mg/mL,2.8μm
70430-2		2mL,5mg/mL,2.8μm
70430-5		5mL,5mg/mL,2.8μm
70431-1		1mL,5mg/mL,1μm
70431-2		2mL,5mg/mL,1μm
70431-5		5mL,5mg/mL,1μm

BeaverBeads™ Streptavidin

BeaverBeads™ Streptavidin can bind specifically to biotinylated nucleic acid molecules, such as probes. These streptavidin-biotin complex is the strongest known noncovalent interaction and has cascade amplification effect. BeaverBead™ Streptavidin can be produced on an industrial scale and widely used as a general solid phase media for marking and capturing.

Application Scope

Legend	Application direction	Sketch
	Nucleic acid capture and purification	BeaverBeads™ Streptavidin can specifically combine biological nucleic acid probe in the hybridization experiments that widely used in DNA, RNA.

Note: the application directions listed above have many forms of implementation, not limited to illustrations

Product Information

PCat. No.	22306	22307	22308	22309
Bead size	5 µm	1 µm	300 nm	2.8 µm
Free biotin (pmol/mg bead)	800	1100	/	/
Biotinylated single stranded oligonucleotide(24nt) (pmol/mg bead)	≥300	≥450	≥450	≥450
Biotinylated IgG (µg/mg bead)	≥10	≥15	≥15	≥10
Bead concentration	10±1 mg/mL			
Preservative solution	1×PBS, 0.1% (w/v) BSA, 0.1% (v/v) proclin-300			
Preservation condition	2~8°C			
Quality guarantee period	24 months			

Product List

Cat. No.	Product name	Specification
22306-1	BeaverBeads™ Streptavidin	5 µm, 1 mL, 10 mg/mL
22306-10		5 µm, 10 mL, 10 mg/mL
22306-100		5 µm, 100 mL, 10 mg/mL
22307-1		1 µm, 1 mL, 10 mg/mL
22307-10		1 µm, 10 mL, 10 mg/mL
22307-100		1 µm, 100 mL, 10 mg/mL
22308-1		300 nm, 1 mL, 10 mg/mL
22308-10		300 nm, 10 mL, 10 mg/mL
22308-100		300 nm, 100 mL, 10 mg/mL
22309-1		2.8 µm, 1 mL, 10 mg/mL
22309-10		2.8 µm, 10 mL, 10 mg/mL
22309-100		2.8 µm, 100 mL, 10 mg/mL

BEAVER was founded in 2011, located at Suzhou, China, with an area of more than 12,000 m². BEAVER focuses on magnetic beads technology and industrialized production, serving in vitro diagnosis, biopharmaceuticals, animal disease detection, environmental testing, food and drug safety testing, biological scientific research and other fields.

BEAVER provides commercial magnetic beads, including preactivated magnetic beads, Immunolabeling and capture magnetic beads, nucleic acid extraction magnetic beads and kits, mycotoxin purification kits and other products, as well as auxiliary automation equipment and supporting biological consumables.



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For more information

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